

REMARKS

In the Final Office Action mailed October 5, 2006, claims 1, 5, 6, 10 and 13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Pott (U.S. Patent No. 5,992,142; hereinafter Pott '142) in view of Pott (U.S. Patent No. 6,164,064; hereinafter Pott '064); and claims 3 and 8 were rejected under 35 U.S.C. 103(a) as being unpatentable over Pott '142 in view of Pott '064 and further in view of Yokoto et al. (U.S. Patent No. 6,269,634). The foregoing rejections are respectfully traversed.

None of the claims have been amended herein.

Claims 1, 3, 5, 6, 8, 10, and 13 are currently pending and under consideration. Reconsideration is respectfully requested.

Regarding the 103 rejections of claims 1, 5, 6, 10 and 13:

Neither Pott '142 nor Pott '064, individually or combined, disclose "an exhaust gas purifying system provided with a NO_x occlusion reduction type catalyst having a catalyst metal and a NO_x occluding substance, in an exhaust passage of a diesel engine, and a control unit comprising a normal control operation means, a regeneration control initiation judging means for detecting a regeneration control initiation timing for said NO_x occlusion reduction type catalyst, a rich-burn control operation means for executing a rich-burn control operation for generating an exhaust gas which is in a fuel-rich state, accompanying recirculation of EGR gas, and a catalyst activation control operation means for executing a control operation for activating said catalyst metal immediately before said rich-burn control operation is performed; wherein said catalyst activation control operation means executing a burning control operation in the vicinity of the stoichiometric air/fuel ratio in a range of 0.8 to 1.1 in terms of an excess air factor, in the condition of an EGR valve being totally closed, and at the same time, executing a multi-stage injection and an early injection in the fuel injection into cylinders and controlling the torque generation of the diesel engine by an intake control to reduce the torque variation during the transition from the normal control operation to the catalyst activation control operation, and wherein regeneration control is performed, to thereby purge or release NO_x from a NO_x occlusion reduction type catalyst," as recited in claim 1, for example.

Pott '142 discloses NO_x conversion of exhaust gases from lean mixture engines such as Diesel engines, by providing a catalytic converter having three zones, the first containing an NO_x storage material on a γ -aluminum oxide layer, the second zone having a layer with a noble metal

and a third zone having an oxygen storage layer (see Abstract).

Further, regarding operation of EGR valve, Pott '142 discloses that the system has different EGR rates in the first operating condition (ordinary or normal engine operation) and the second operation condition (regeneration control) (see column 6, lines 8-14). Further, Pott '142 discloses that the quantity of EGR gas is reduced during a change from a first operating condition to a second operating condition (see column 6, lines 55-58). Further, when the vehicle is coasting or the engine is idling with approximately 20% filling of the NO_x accumulator with NO₂ or operating in a lower partial load range with approximately 50% filling of the accumulator with NO₂, regeneration of the NO_x is initiated by the control unit (column 10, lines 40-49). That is, when the regeneration is performed, the control valve (i.e., EGR valve) 10 as shown in FIG. 1 is opened so that a high EGR rate is achieved. Also, see column 12, lines 1-4 which states that regeneration is initiated by opening the EGR valve 10. Thus, based upon the above comments, in Pott '142, **in carrying out of regeneration, a control is done to open the EGR valve 10.** Pott' 142 fails to disclose "wherein said catalyst activation control operation means executing a burning control operation in the vicinity of the stoichiometric air/fuel ratio in a range of 0.8 to 1.1 in terms of an excess air factor, **in the condition of an EGR valve being totally closed,**" as recited in claim 1, for example. That is, Pott '142 fails to disclose that when regeneration control is done, the EGR valve 10 is wholly closed.

Further, Pott '142 fails to disclose "controlling the torque generation of the diesel engine by an intake control to reduce the torque variation during the transition from the normal control operation to the catalyst activation control operation," as recited in claim 1.

In contrast, Pott '142 discloses that during the second set of operating conditions, the air supply to the internal combustion engine is preferably reduced, desirably by throttling in the air intake duct (see column 5, line 65 – column 6, line 7). Further, Pott '142 discloses that the **throttle valve 8 is partially closed** so that the fresh air supply to the air intake 11 is sharply reduced (see column 10, lines 40-47; and column 13, lines 46-49). Further, at column 11, lines 51-57, Pott '142 discloses that in sensing the load step 22 shown in FIG. 2, is carried out because regeneration, for example, by throttling the air supply, raising of the EGR rate and/or a higher quantity of injected fuel, is accompanied by a drop in power of the internal combustion engine. Further, at column 12, lines 1-4, Pott '142 discloses that regeneration is initiated by operating the throttle 8. Further, at column 12, lines 31-33, Pott '142 discloses that with increasing throttling, the CO supply of the engine increases, and the minimum regeneration period decreases. Based upon the above comments, it is understood that while the throttle

valve 8 is operated when regeneration is carried out in Pott '142, the purpose of this operation is to reduce the regeneration period and is **not** related to "controlling the torque generation of the diesel engine by an intake control to reduce the torque variation during the transition from the normal control operation to the catalyst activation control operation," as recited in claim 1, for example. That is, the purpose of the above operation in Pott '142 has nothing to do with a control of torque-generation quantity of the engine such as prevention of lowering of power output of the internal combustion engine 1, such that while operation to close the valve is performed, adjustment of opening degree of the valve is not performed.

At page 4 of the Office Action, the Examiner admits that Pott '142 fails to disclose "wherein said catalyst activation control operation means executing a burning control operation in the vicinity of the stoichiometric air/fuel ratio in a range of 0.8 to 1.1 in terms of an excess air factor, in the condition of an EGR valve being totally closed, and at the same time, executing a multi-stage injection and an early injection in the fuel injection into cylinders," as recited in claim 1, for example. Pott '064 fails to make up for the deficiencies of Pott '142 as mentioned above.

Further, as previously mentioned, Pott '064 also fails to disclose "regeneration control is performed, to thereby purge or release NOx from a NOx occlusion reduction type catalyst" as recited in claim 1, for example. Instead, Pott '064 teaches the removal of sulfur from NOx reservoir catalysts, where sulfur inhibits the absorption of NOx by the reservoir catalysts (see column 1, lines 10-21).

The Applicants respectfully traverse the Examiner's assertions of obviousness as stated on pages 4-6 of the Office Action.

Although the above comments are specifically directed to claim 1, it is respectfully submitted that the comments would be helpful in understanding differences of various other rejected claims over the cited reference. Thus, the Applicants respectfully submit that the combination of Pott '142 in view of Pott '064 fails to establish a prima facie case of obviousness over the present invention. Therefore, it is respectfully submitted that the rejection is overcome.

Regarding the 103 rejection of claims 3 and 8:

Claims 3 and 8 depend from claims 1 and 6, respectively. Therefore, the comments mentioned above may be applied here also.

Yokoto et al. fails to make up for the deficiencies of Pott '142 and Pott '064 as mentioned above. Therefore, the combination of Pott '142, Pott '064 and Yokoto fails to establish a prima facie case of obviousness over the present invention.

Therefore, it is respectfully submitted that the rejection is overcome.

Withdrawal of the rejections is respectfully requested.

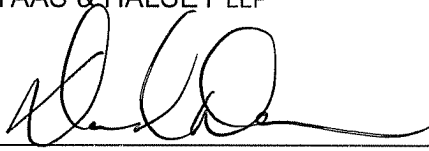
If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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